

Near Infrared Activity Close to the Crab Pulsar Correlated with Giant Gamma-ray Flares

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We describe activity observed in the near-infrared correlated with a giant gamma-ray flare in the Crab Pulsar. The Crab Pulsar has been observed by the Fermi and AGILE satellites to flare for a period of 3 to 7 days, once every 1-1.5 years, increasing in brightness by a factor of 3-10 between 100MeV and 1GeV. We used Keck NIRC2 laser guide star adaptive optics imaging to observe the Crab Pulsar and environs before and during the March 2013 flare. We discuss the evidence for the knot as the location of the flares, and the theoretical implications of these observations. Ongoing target-of-opportunity programs hope to confirm this correlation for future flares.